

HOW DO U.S. POPULATIONS STACK UP? READING, ANALYZING, AND CREATING POPULATION PYRAMIDS

Activity Items

The following items are part of this activity and appear at the end of this student version.

- Item 1: U.S. Population Pyramid, 1980
- Item 2: U.S. Population Pyramid, 2015
- Item 3: U.S. Projected Population Pyramid, 2040
- Item 4: Population Pyramid of Punta Gorda, Florida, and Provo-Orem, Utah, 2010
- Item 5: Population Pyramid of the New Orleans-Metairie-Kenner, Louisiana, Metro Area, 2000 and 2010
- Item 6: Data Sheets for Age and Gender Population Structures by State

Student Learning Objectives

- I will be able to compare the population structures of various U.S. cities based on economic and socioeconomic information.
- I will be able to calculate the age range population percentages for a selected U.S. state.
- I will be able to create a population pyramid based on age and gender percentages.
- I will be able to predict possible outcomes of changing age-dependency ratios and how these changes might impact government policy.

Geographers use a variety of tools to analyze population patterns. Population pyramids are infographics that help people better understand population structures in different places and at different scales. In this activity, you will learn how population pyramids describe population structures and then will use U.S. Census Bureau data to calculate age range population percentages for a selected state and create its population pyramid.

NAME: _____ DATE: _____

Part 1 – Compare U.S. Populations Over Time

1. Examine **Item 1: U.S. Population Pyramid, 1980**. What patterns stand out to you about the country's age and population structures in 1980?
2. In **Item 1**, which age range(s) has the largest population of men and which has the largest population of women?
3. Examine **Item 2: U.S. Population Pyramid, 2015**. What patterns stand out to you about the country's age and population structures in 2015?
4. In **Item 2**, which age range(s) has the greatest population of men and which has the greatest population of women?

5. Examine **Item 3: U.S. Projected Population Pyramid, 2040**. What patterns stand out to you about the county's predicted age and population structures for 2040?

6. In **Item 3**, which age range(s) is predicted to have the greatest population of men and which is predicted to have the greatest population of women?

7. What do you think will be some of the important public policy and service issues facing the United States from now until 2040 based on these population predictions?

8. Discuss with your teacher and classmates why understanding the number of people in specific age brackets may matter. For example, what types of services and policies will be important to a society with a large number of:
 - a. 0- to 4-year-olds?

 - b. 5- to 19-year-olds?

- c. 20- to 35-year-olds and 36- to 64-year-olds?
 - d. 65-year-olds and older?
9. What do you notice about the differences among the population in 1980, the population in 2015, and the predicted population in 2040?

Part 2 – Explore U.S. Population Pyramids

Use **Item 4: Population Pyramid of Punta Gorda, Florida, and Provo-Orem, Utah, 2010** to answer questions 1 through 4 below, to rank each city's policy priorities, and to explain your logic.

1. How does the population pyramid of Punta Gorda, Florida, compare with the population pyramid of Provo-Orem, Utah?
2. Which age range in Provo-Orem has the largest population of men? Of women? Which age range in Punta Gorda has the largest population of men? Of women?

3. What are some possible explanations for the differences in the age structures for these two cities?

4. Rank the following public policy considerations on a scale of 1 (most important) to 6 (least important) as if they were being presented to Punta Gorda and Provo-Orem. Explain why you ranked the policies the way you did in the space provided below.

Priorities for Punta Gorda:

_____ Community-based adult services that prevent older adults from having to relocate

_____ Bicycle lanes and “Share the Road” signage

_____ Relocation and mortgage assistance programs

_____ New schools and school modernization

_____ School consolidation and closings

_____ Rezoning of nonresidential land to residential land

Explanation:

Priorities for Provo-Orem:

- _____ Community-based adult services that prevent older adults from having to relocate
- _____ Bicycle lanes and “Share the Road” signage
- _____ Relocation and mortgage assistance programs
- _____ New schools and school modernization
- _____ School consolidation and closings
- _____ Rezoning of nonresidential land to residential land

Explanation:

Use **Item 5: Population Pyramid of the New Orleans-Metairie-Kenner, Louisiana, Metro Area, 2000 and 2010** to answer questions 1 through 5 below, keeping in mind that between 2000 and 2010 the total population of New Orleans decreased by 30 percent due to Hurricane Katrina, followed by significant outmigration.

1. How does the New Orleans 2000 pyramid compare with that for 2010?

2. Which age range has the largest population of men in 2010? Of women? Which age range has the largest population of men in 2000? Of women?

3. Which age groups likely moved out of the city between 2000 and 2010? What do these data suggest?

4. What services and programs do you think were most affected by the outward migration of people from New Orleans? Why?

5. What types of events may have caused New Orleans to lose 30 percent of its population during this time period? Why would certain people remain residents of the city while others would leave?

Part 3 – Calculate Population Pyramids

Fill out whichever data sheet from **Item 6: Data Sheets for Age and Gender Population Structures by State** your teacher assigns you, out of the 10 provided in this activity. Calculate the age structure percentages for each age bracket on your data sheet by dividing the number of men or women in that bracket by the total population and then multiplying that number by 100. Round your percentages to the nearest tenth.

Part 4 - Create a Population Pyramid

Use your completed data sheet, colored pencils, and graph paper to create a population pyramid.

Provide the correct labels and a title for your graph, and fill in all the percentage and age group intervals. Using one color for men and another for women, draw the bars for each age group based on the percentages you calculated on your data sheet.

Once you are done, turn to one or two of your classmates to compare pyramids.

Part 5 – Reflect on Population Data

1. What are three things you learned about the structure of populations?
2. What types of issues do different areas face based on their population pyramid? How might decisions about education, public transportation, health care, land use, taxes, and other issues differ based on an area's population pyramid (or the age-dependency ratio)?
3. What is one question you still have after completing this activity?

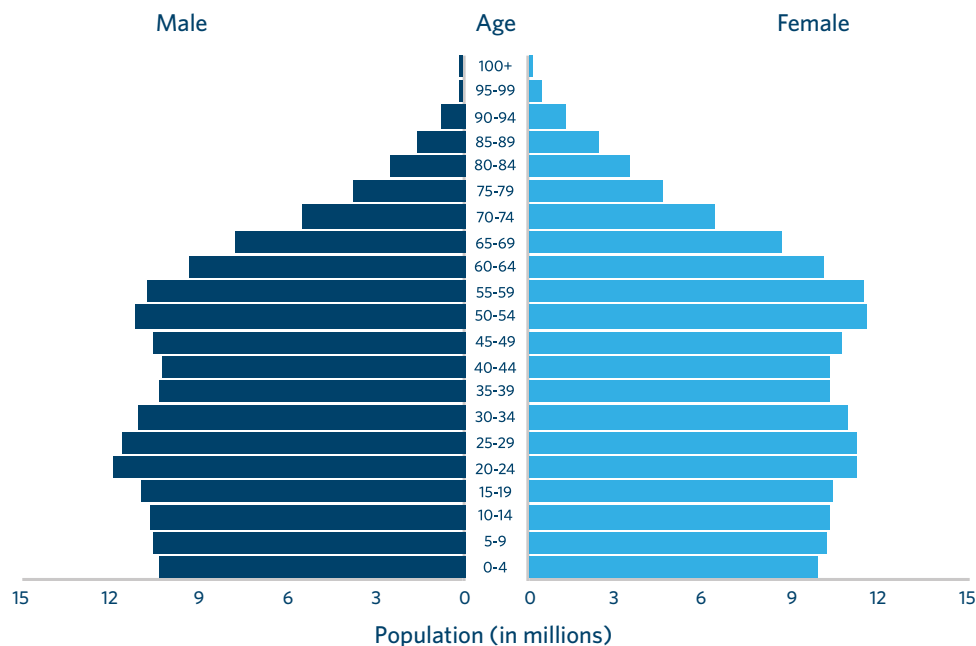
Item 1: U.S. Population Pyramid, 1980



www.census.gov/data-tools/demo/idb

To retrieve the data, click on the link above. Select "Population Pyramid Graph" from the "Select Report" drop-down menu, "1980" as the year, and "United States" as the country. Click "Submit."

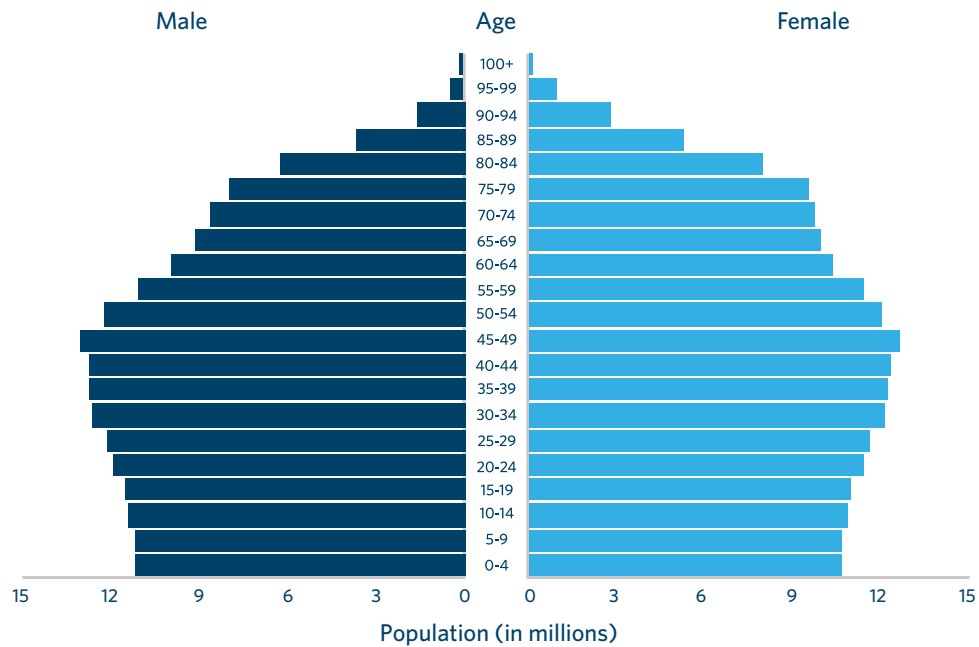
Item 2: U.S. Population Pyramid, 2015



www.census.gov/data-tools/demo/idb

To retrieve the data, click on the link above. Select "Population Pyramid Graph" from the "Select Report" drop-down menu, "2015" as the year, and "United States" as the country. Click "Submit."

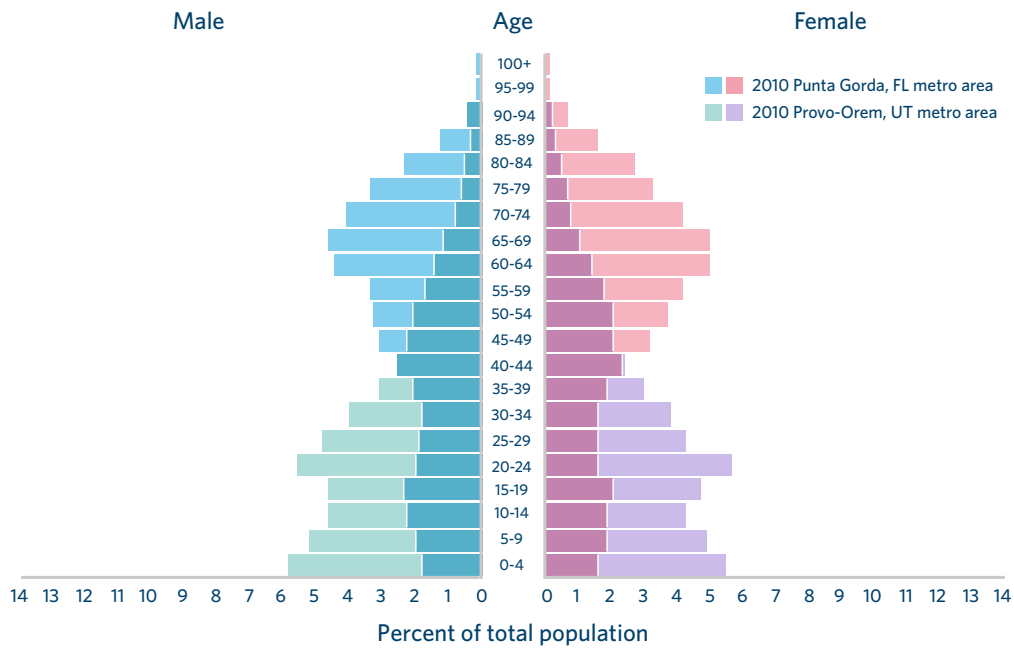
Item 3: U.S. Projected Population Pyramid, 2040



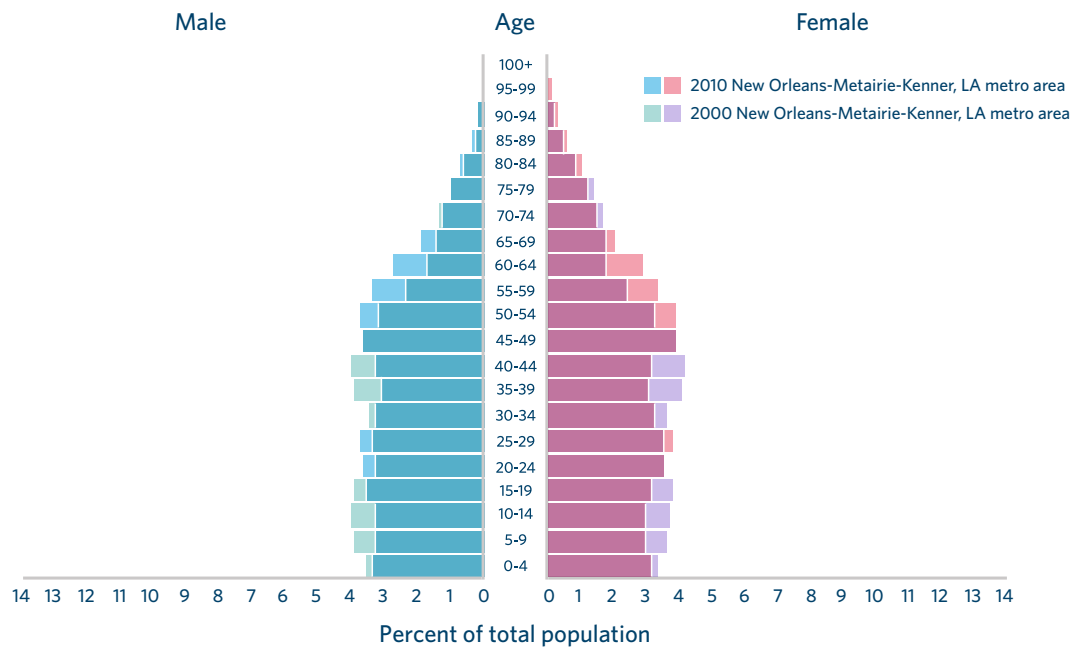
www.census.gov/data-tools/demo/idb

To retrieve the data, click on the link above. Select "Population Pyramid Graph" from the "Select Report" drop-down menu, "2040" as the year, and "United States" as the country. Click "Submit."

Item 4: Population Pyramid of Punta Gorda, Florida, and Provo-Orem, Utah, 2010



Item 5: Population Pyramid of the New Orleans-Metairie-Kenner, Louisiana, Metro Area, 2000 and 2010



Item 6: Data Sheets for Age and Gender Population Structures by State

State: **Alabama** Total Population: **4,849,377**

Population Pyramid Calculations, Formula: (Males or Females/Total Population)*100

MALES	PERCENTAGE	AGE BRACKET	FEMALES	PERCENTAGE
150,471		0 to 4	140,689	
156,723		5 to 9	147,731	
162,239		10 to 14	159,558	
166,177		15 to 19	163,448	
175,589		20 to 24	169,986	
149,533		25 to 29	156,727	
150,052		30 to 34	159,636	
144,270		35 to 39	149,077	
157,360		40 to 44	162,527	
148,575		45 to 49	158,721	
166,364		50 to 54	177,544	
160,897		55 to 59	171,349	
137,603		60 to 64	160,019	
114,261		65 to 69	134,803	
86,290		70 to 74	98,890	
58,603		75 to 79	76,681	
37,820		80 to 84	55,615	
25,142		85 and older	58,407	

Source: U.S. Census Bureau, 2014. American Community Survey 1-Year Estimates. Sex by Age, Total Population.
(Note: This is a modified view of the original table.)

<https://data.census.gov/cedsci/table?q=b01001&g=0100000US.04000.001&tid=ACSDT1Y2014.B01001&hidePreview=true>

Item 6: Data Sheets for Age and Gender Population Structures by State (Continued)

State: **Alaska** Total Population: **736,732**

Population Pyramid Calculations, Formula: (Males or Females/Total Population)*100

MALES	PERCENTAGE	AGE BRACKET	FEMALES	PERCENTAGE
26,766		0 to 4	26,642	
27,517		5 to 9	25,481	
25,859		10 to 14	24,689	
26,559		15 to 19	24,491	
36,654		20 to 24	26,925	
33,536		25 to 29	26,621	
27,838		30 to 34	25,779	
24,810		35 to 39	21,248	
23,535		40 to 44	23,490	
23,394		45 to 49	21,946	
26,296		50 to 54	24,725	
26,532		55 to 59	24,440	
21,944		60 to 64	19,116	
14,718		65 to 69	13,745	
9,428		70 to 74	8,336	
5,410		75 to 79	5,494	
3,010		80 to 84	3,521	
1,776		85 and older	4,461	

Source: U.S. Census Bureau, 2014. American Community Survey 1-Year Estimates. Sex by Age, Total Population.
(Note: This is a modified view of the original table.)

<https://data.census.gov/cedsci/table?q=b01001&q=0100000US.04000.001&tid=ACSDT1Y2014.B01001&hidePreview=true>

Item 6: Data Sheets for Age and Gender Population Structures by State (Continued)

State: **Florida** Total Population: **19,893,297**

Population Pyramid Calculations, Formula: (Males or Females/Total Population)*100

MALES	PERCENTAGE	AGE BRACKET	FEMALES	PERCENTAGE
546,207		0 to 4	531,365	
577,804		5 to 9	543,566	
584,684		10 to 14	564,842	
615,651		15 to 19	580,388	
671,013		20 to 24	636,581	
653,012		25 to 29	629,616	
614,806		30 to 34	615,195	
586,086		35 to 39	593,449	
617,327		40 to 44	635,747	
642,493		45 to 49	661,851	
697,450		50 to 54	728,951	
637,601		55 to 59	697,278	
575,376		60 to 64	664,004	
543,603		65 to 69	614,496	
428,663		70 to 74	497,128	
319,106		75 to 79	369,682	
217,161		80 to 84	276,859	
194,185		85 and older	330,071	

Source: U.S. Census Bureau, 2014. American Community Survey 1-Year Estimates. Sex by Age, Total Population.

(Note: This is a modified view of the original table.)

<https://data.census.gov/cedsci/table?q=b01001&g=0100000US.04000.001&tid=ACSDT1Y2014.B01001&hidePreview=true>

Item 6: Data Sheets for Age and Gender Population Structures by State (Continued)

State: **Idaho** Total Population: **1,634,464**

Population Pyramid Calculations, Formula: (Males or Females/Total Population)*100

MALES	PERCENTAGE	AGE BRACKET	FEMALES	PERCENTAGE
55,741		0 to 4	55,966	
65,679		5 to 9	57,633	
63,019		10 to 14	62,003	
60,807		15 to 19	57,950	
58,775		20 to 24	51,698	
52,546		25 to 29	52,124	
53,051		30 to 34	53,586	
50,767		35 to 39	49,844	
50,804		40 to 44	51,085	
46,506		45 to 49	46,771	
51,610		50 to 54	51,919	
47,988		55 to 59	51,870	
49,323		60 to 64	50,420	
40,968		65 to 69	39,693	
28,533		70 to 74	31,774	
20,144		75 to 79	20,891	
10,339		80 to 84	16,196	
10,450		85 and older	15,991	

Source: U.S. Census Bureau, 2014. American Community Survey 1-Year Estimates. Sex by Age, Total Population.
(Note: This is a modified view of the original table.)

<https://data.census.gov/cedsci/table?q=b01001&g=01000000US.04000.001&tid=ACSDT1Y2014.B01001&hidePreview=true>

Item 6: Data Sheets for Age and Gender Population Structures by State (Continued)

State: **Maine** Total Population: **1,330,089**

Population Pyramid Calculations, Formula: (Males or Females/Total Population)*100

MALES	PERCENTAGE	AGE BRACKET	FEMALES	PERCENTAGE
31,581		0 to 4	31,336	
36,972		5 to 9	34,858	
37,266		10 to 14	38,386	
41,483		15 to 19	40,250	
40,114		20 to 24	38,436	
37,999		25 to 29	38,676	
36,570		30 to 34	39,038	
37,458		35 to 39	36,741	
39,791		40 to 44	42,190	
45,318		45 to 49	46,909	
54,022		50 to 54	55,621	
51,361		55 to 59	56,561	
47,883		60 to 64	50,705	
41,115		65 to 69	41,572	
26,972		70 to 74	30,532	
17,759		75 to 79	21,490	
12,927		80 to 84	18,837	
11,031		85 and older	20,329	

Source: U.S. Census Bureau, 2014. American Community Survey 1-Year Estimates. Sex by Age, Total Population.
(Note: This is a modified view of the original table.)

<https://data.census.gov/cedsci/table?q=b01001&g=01000000US.04000.001&tid=ACSDT1Y2014.B01001&hidePreview=true>

Item 6: Data Sheets for Age and Gender Population Structures by State (Continued)

State: **Minnesota** Total Population: **5,457,173**

Population Pyramid Calculations, Formula: (Males or Females/Total Population)*100

MALES	PERCENTAGE	AGE BRACKET	FEMALES	PERCENTAGE
176,988		0 to 4	170,415	
186,894		5 to 9	176,321	
182,479		10 to 14	177,142	
182,875		15 to 19	171,848	
182,528		20 to 24	177,100	
186,734		25 to 29	180,114	
195,367		30 to 34	188,758	
172,068		35 to 39	165,197	
166,481		40 to 44	168,335	
176,708		45 to 49	175,605	
203,218		50 to 54	203,376	
194,610		55 to 59	190,789	
159,413		60 to 64	167,977	
120,980		65 to 69	127,921	
85,233		70 to 74	96,041	
57,913		75 to 79	75,772	
43,031		80 to 84	56,611	
39,303		85 and older	75,028	

Source: U.S. Census Bureau, 2014. American Community Survey 1-Year Estimates. Sex by Age, Total Population.

(Note: This is a modified view of the original table.)

<https://data.census.gov/cedsci/table?q=b01001&g=0100000US.04000.001&tid=ACSDT1Y2014.B01001&hidePreview=true>

Item 6: Data Sheets for Age and Gender Population Structures by State (Continued)

State: **Texas** Total Population: **26,956,958**

*Population Pyramid Calculations, Formula: (Males or Females/Total Population)*100*

MALES	PERCENTAGE	AGE BRACKET	FEMALES	PERCENTAGE
999,785		0 to 4	946,603	
1,023,881		5 to 9	992,466	
1,020,697		10 to 14	971,999	
996,571		15 to 19	936,998	
1,017,622		20 to 24	962,448	
997,311		25 to 29	953,665	
985,834		30 to 34	967,920	
909,516		35 to 39	911,909	
910,068		40 to 44	928,775	
848,186		45 to 49	855,988	
868,659		50 to 54	890,150	
780,642		55 to 59	826,543	
655,216		60 to 64	701,493	
501,640		65 to 69	557,053	
355,693		70 to 74	419,266	
234,753		75 to 79	297,227	
155,605		80 to 84	228,145	
122,638		85 and older	223,993	

Source: U.S. Census Bureau, 2014. American Community Survey 1-Year Estimates. Sex by Age, Total Population.

(Note: This is a modified view of the original table.)

<https://data.census.gov/cedsci/table?q=b01001&g=01000000US.04000.001&tid=ACSDT1Y2014.B01001&hidePreview=true>

Item 6: Data Sheets for Age and Gender Population Structures by State (Continued)

State: **Utah** Total Population: **2,942,902**

Population Pyramid Calculations, Formula: (Males or Females/Total Population)*100

MALES	PERCENTAGE	AGE BRACKET	FEMALES	PERCENTAGE
129,197		0 to 4	120,612	
130,228		5 to 9	129,795	
134,190		10 to 14	120,627	
116,435		15 to 19	110,410	
123,071		20 to 24	123,603	
106,474		25 to 29	104,279	
114,958		30 to 34	110,652	
106,657		35 to 39	102,749	
91,524		40 to 44	86,526	
77,222		45 to 49	75,413	
77,147		50 to 54	78,121	
71,436		55 to 59	75,063	
65,469		60 to 64	66,065	
47,312		65 to 69	51,806	
34,951		70 to 74	38,449	
22,402		75 to 79	32,255	
16,494		80 to 84	18,541	
14,360		85 and older	18,409	

Source: U.S. Census Bureau, 2014. American Community Survey 1-Year Estimates. Sex by Age, Total Population.

(Note: This is a modified view of the original table.)

<https://data.census.gov/cedsci/table?q=b01001&g=0100000US.04000.001&tid=ACSDT1Y2014.B01001&hidePreview=true>

Item 6: Data Sheets for Age and Gender Population Structures by State (Continued)

State: **Vermont** Total Population: **626,562**

*Population Pyramid Calculations, Formula: (Males or Females/Total Population)*100*

MALES	PERCENTAGE	AGE BRACKET	FEMALES	PERCENTAGE
16,610		0 to 4	14,271	
16,705		5 to 9	17,391	
18,260		10 to 14	15,261	
22,091		15 to 19	21,373	
23,557		20 to 24	22,764	
18,324		25 to 29	17,845	
17,896		30 to 34	18,831	
16,111		35 to 39	17,457	
19,451		40 to 44	19,271	
20,051		45 to 49	21,029	
23,707		50 to 54	25,214	
25,061		55 to 59	26,670	
21,751		60 to 64	22,955	
17,194		65 to 69	18,695	
13,538		70 to 74	13,236	
7,196		75 to 79	9,297	
5,880		80 to 84	8,265	
5,133		85 and older	8,221	

Source: U.S. Census Bureau, 2014. American Community Survey 1-Year Estimates. Sex by Age, Total Population.
(Note: This is a modified view of the original table.)

<https://data.census.gov/cedsci/table?q=b01001&g=0100000US.04000.001&tid=ACSDT1Y2014.B01001&hidePreview=true>

Item 6: Data Sheets for Age and Gender Population Structures by State (Continued)

State: **West Virginia** Total Population: **1,850,326**

Population Pyramid Calculations, Formula: (Males or Females/Total Population)*100

MALES	PERCENTAGE	AGE BRACKET	FEMALES	PERCENTAGE
51,405		0 to 4	51,147	
54,299		5 to 9	51,976	
57,182		10 to 14	51,962	
59,031		15 to 19	54,443	
62,894		20 to 24	59,637	
55,581		25 to 29	52,875	
55,923		30 to 34	55,040	
54,367		35 to 39	52,939	
60,687		40 to 44	59,680	
60,308		45 to 49	59,147	
64,374		50 to 54	67,150	
67,223		55 to 59	71,265	
64,228		60 to 64	66,508	
56,636		65 to 69	57,160	
34,859		70 to 74	41,918	
27,947		75 to 79	31,478	
14,693		80 to 84	25,551	
13,049		85 and older	25,764	

Source: U.S. Census Bureau, 2014. American Community Survey 1-Year Estimates. Sex by Age, Total Population.
(Note: This is a modified view of the original table.)

<https://data.census.gov/cedsci/table?q=b01001&g=0100000US.04000.001&tid=ACSDT1Y2014.B01001&hidePreview=true>